REQUEST FOR ADDITIONAL
INFORMATION IN SUPPORT OF
LICENSE RENEWAL APPLICATION FOR AREVA NP, INC.

Chapter 1: General Information

1. Provide scaled drawings of Figures 1-1, "Fuels Manufacturing Plant Arrangement" and 1-2, "Site General Arrangement," in order to better understand the facility's layout and the descriptions of the different processes conducted at the plant. This information is necessary to determine compliance with the requirements in 10 CFR 70.22(a)(2).

2. Justify the requests for each exemption and authorization mentioned in Section 1.2.5 of the license application and how they will not affect the safety of the workers or the facility. This information is necessary to determine compliance with the requirements in 10 CFR 70.22(a)(8).

3. Section 1.3.2 of the license application provides information about the "current" population in the tri-cities area. However, the license application does not cite the references used by AREVA NP, Inc. (AREVA) to obtain this information. Clarify what are the sources used to obtain this information and how "current" (i.e., year) the information is. This information is necessary to determine compliance with the requirements in 10 CFR 70.9(a).

Chapter 2: Organization and Administration

1. Section 2.2 describes the qualifications for the different organizational responsibilities and functions at the facility. Revise this section in the license application to clarify what is the degree (i.e., bachelor's, masters, etc.) for each one of these functions. For the training function discussed in Section 2.2.7, revise the license application to clarify the degree and discipline required by an individual that is performing this function. This information is necessary to determine compliance with the requirements in 10 CFR 70.22(a)(6).

Chapter 4: Radiation Protection

1. In Section 4.2 entitled "ALARA Program," the second paragraph indicates that the site manager shall be responsible for ensuring adherence to the as low as reasonably achievable (ALARA) philosophy. The remainder of the paragraph states that the ALARA philosophy will be implemented throughout the organization because of the qualifications discussed in Chapter 2, Organization and Administration. This section causes concern since there are no ALARA principles specified in Chapter 2 for areas outside the Radiation Protection Function, e.g. "organizations involved with the use or handling of licensed material". Consistent with the requirements in 10 CFR 20.1101(b), revise the reference to Chapter 2 with a description of how ALARA is incorporated into ".....organizations involved with the use or handling of licensed material." Specify that the ALARA philosophy will be incorporated into written procedures for other functions, such as operations and manufacturing that work with licensed material.

2. In Section 4.2 entitled ALARA Program, the third and fourth paragraphs provide a well rounded description of the ALARA Committee and ALARA Report regarding tracking. However, information about applying the findings requires further explanation. Consistent with 10 CFR 20.1101(c):

   i) State that areas identified for improvement in the ALARA Report will be addressed by the appropriate operations function. Clarify that the Environmental Health Safety & Licensing manager reviews and supports implementation of the recommendations. Describe how recommendations from the Committee and Report are incorporated into operations. In the description, demonstrate that the ALARA committee has sufficient authority to ensure that recommendations regarding the radiation protection program are implemented.

   ii) Revise the last sentence in the fourth paragraph to state that new ALARA approaches, technologies, and operating procedures that could reduce radiation exposures may be incorporated. The current wording gives the impression that the ALARA philosophy may or may not be used. Consistent with the requirements in 10 CFR 20.1101(b), revise this sentence to state that the ALARA philosophy will (rather than may) be used to reduce radiation exposures.

3. Section 2.2.5.2 contains a basic description of the members of the radiation protection function. The section does not provide sufficient distinction between Health and Safety Technicians (HST) and the "individual(s) responsible for the radiation protection function." Consistent with 10 CFR 70.22(a)(6), state the title of the radiation protection function staff who are not HST. Specify if these individuals are all managers. Identify the authority and responsibilities of these individuals (managers, supervisors, technicians, etc.) within the Radiation Protection function. Establish a clear organizational relationship between the individual positions responsible for the radiation protection program. Describe the minimum training requirements and qualification for each position of the radiation protection staff.

4. Section 4.4 covers Radiation Work Permits (RWP) and Radiation Job Permits (RJP). The section lacks sufficient distinction between RWPs and RJPs. This section has insufficient information regarding the issuing of RWPs and RJPs. Consistent with the requirements in 10 CFR 70.23(a)(4), describe the difference between RWPs and RJPs. Specify the basic level of information required for RWPs and RJPs. Specify how the radiation protection procedures will be prepared, authorized, approved, and distributed.

5. Section 4.5 and 11.3.1 both contain commitments to conduct radiological refresher training. However, the two sections are inconsistent with each other. Section 4.5 commits to three year refresher training and Section 11.3.1 commits to annual refresher training. Consistent with 10 CFR 70.9, modify these sections to be consistent.

6. Section 9.2.3 indicates that corrosive fumes may negatively impact HEPA filters. The section does not specify the use of water or charcoal filters to remove these corrosive fumes. Also, the paragraph states that the final HEPA filter will be periodically inspected, but does not specify if there are multiple, redundant HEPA filters that need inspection or how often the inspection will take place. Consistent with 10 CFR 20.1701, state that all HEPA filters exposed to corrosive fumes will be inspected. Specify a minimum inspection time. Describe the criteria used to evaluate if the corrosive fumes have compromised the filter. Explain why corrosive fumes are not removed by a chemical

7. Filter prior to contacting the HEPA filter. Describe the extent of these corrosive fumes and indicate, based on previous experience, how quickly they deteriorate the HEPA filter. Alternatively, discuss how changes in differential pressure across the HEPA filters will be evaluated to determine if the filter is loaded, or if corrosive fumes have compromised the filter.

8. Section 4.6.1 provides a description of procedures required for monitoring HEPA filters, hoods and glove boxes. The section contains several commitments to conduct routine monitoring of differential pressures for HEPA filters and airflow velocities at glove boxes. The use of the term "periodically" does not provide sufficient information about frequency of monitoring. Consistent with 10 CFR 20.1701, specify a minimum timeframe to check both the differential pressures of HEPA filters and airflow velocities for hoods. (e.g., differential pressures shall be recorded periodically, but at least monthly, or quarterly, or etc.) If a minimum timeframe can not be provided, state that a timeframe will be specified in the written procedures, and the procedure will be reviewed and approved by the appropriate Function, and specify what this Function is. Clarify that exhaust from hoods and glove boxes will be exhausted through HEPA filters.

9. The second paragraph in Section 4.7 describes the licensee's action levels. The first sentence has a reference to frequencies that is unclear. The section also indicates action levels may be established. In addition, Sections 4.7.1, "Radiation Survey," 4.7.2, "Personnel Monitoring Program – External Radiation Exposure," and 4.7.3, "Personnel Monitoring Program – Internal Radiation Exposure" do not contain commitments to implement administrative limits, action levels, or corrective actions. Consistent with 10 CFR 20.1101(a):

    i) Clarify the meaning of the first sentence of the second paragraph of Section 4.7, particularly the reference to frequencies;

    ii) Commit to establishing action levels by changing the word "may" to "shall" in Section 4.7, second sentence of the second paragraph.

    Commit to establishing administrative limits for contamination levels and corresponding actions levels in Sections 4.7.1, 4.7.2, and 4.7.3. State that administrative limits and action levels are established in written procedures for exposure and contamination. State that circumstances that lead to an administrative limit being exceeded will be reviewed by the corrective action program. Provide a basic overview of actions to be taken when administrative limits are exceeded, for example: investigation by the radiation protection function, bioassay monitoring, lung counting, additional surveys, exposure restrictions, etc.

10. Section 4.7.1 describes the licensee's radiation survey program. The section provides a commitment to conduct surveys in areas of the facility in which radioactive materials are stored or processed. However, it does not describe the areas to be surveyed, types of surveys, or frequencies surveyed. Consistent with the requirements in 10 CFR 20.1501(a), provide a commitment to conduct the survey program in accordance with RG-8.24. Alternatively, state that written procedures will be used for the entire survey program. List the types of surveys to be conducted, the locations that the surveys will be conducted, the frequency that the surveys will be conducted, and the action levels to be taken when contamination levels are exceeded. Describe the recordkeeping for the Radiation Survey and Monitoring Program.

11. Section 4.7.2 describes the criteria for wearing a dosimeter. This section needs clarification because the reference to "significant radiation doses" in the first sentence is subjective. Consistent with 10 CFR 20.1502(a), either define what is meant by "significant radiation doses," or modify the criteria for using dosimeters to an objective quantity or a well defined area of the plant.

12. The fourth paragraph of Section 4.7.4 describes frequency of air sampling as based on historical experience. This method is acceptable for determining frequency; however, it does not provide sufficient information on the basics of the air sampling program.

    i) Consistent with 10 CFR 20.1501(a)(2), add a minimum time frame for changing air samples for each specified area of the facility, such as each shift, each day, etc. Alternatively, commit to conduct the air sampling program in compliance with RG-8.25.

    As an alternative, describe the historical method used to determine frequency of sampling, with sufficient detail to evaluate its effectiveness. Describe the time frame considered in the review, the type of samples reviewed, the frequency with which the historical method will be reviewed, etc.

    ii) Consistent with 10 CFR 20.1502(a), state the minimum time period between bioassay measurements. Describe the bioassay measurement and evaluation procedure with sufficient detail to demonstrate compliance with RG-8.9, or commit to conduct bioassay measurements in accordance with this standard or an equivalent standard.

13. Section 4.7.4 describes the use of the International Commission on Radiological Protection (ICRP) 68. The wording in this section can be interpreted to imply a request for blanket permission to use future ICRP models. Consistent with 10 CFR 70.17, remove the parenthetical portion of the second paragraph in Section 4.7.4 that states, "…..or a future ICRP model." Use of a specific ICRP model may be requested but must be approved by exemption to 10 CFR Part 20. AREVA has previously been approved to use ICRP 66/68, but future ICRP models must be requested and approved, by the NRC, individually. A new request may be submitted, with additional information, to request an exemption for a model other than ICRP 66/68.

14. Section 4.7.5 describes the contamination control program. Consistent with 10 CFR 70.23(a)(4), specify the types and frequencies of routine surveys for various areas of the facility. State that surveys will monitor for removable and fixed surface contamination. Define a contamination controlled area. State action levels such as clean up times for various contamination levels.

15. The fourth paragraph in Section 4.7.5 contains the description of a procedure to allow contaminated material to be moved through a non-contaminated area without being decontaminated. The wording can be interpreted to imply that the survey measures to prevent the spread of contamination would be bypassed. Consistent with 10 CFR 20.1501, commit to establishing written procedures which will ensure that:

    i) Items will be entirely sealed/packaged in clean containers in a transition area (similar to a step off area);

ii) Items are not inadvertently released to a clean area; and

iii) AREVA will use the shortest route to transfer items through the clean area in order to minimize transfer time.

Remove the portion of paragraph four that states, "Such transfers may be made without a survey if the material has only fixed contamination…" since a survey (i.e., smears) must be conducted to determine if removable contamination is present. Replace the reference to "….have smearable contamination levels less than those permitted by facility procedures," with the levels listed for clean areas (free release), except for items enclosed as described above.

16. The first sentence in the second paragraph, in Section 4.8.1 describes a commitment to investigate instances where radiation exposure exceeds action levels. This section does not discuss information regarding implementation of administrative limits or action levels for radiological surveys. A similar issue was highlighted in RAI # 8 for this Chapter. Consistent with 10 CFR 20.1101(a), modify the first sentence in the second paragraph in Section 4.8.1 to apply administrative limits or action levels to radiological surveys. State what function will conduct the investigation and clarify the difference between action levels and administrative limits.

Chapter 5: Nuclear Criticality Safety

1. Revise Chapter 3 of the license application to include a commitment to follow the Integrated Safety Analysis (ISA) methodology that was reviewed and approved by the NRC by letter dated October 25, 2007. This should include the consequence, likelihood, and overall risk determinations and the definitions of "unlikely", "highly unlikely", and "credible". This information is necessary to determine compliance with the requirements in 10 CFR 70.62(a).

2. Commit to maintain an ISA for all facilities located at the Richland site at which licensed material is transported, stored, or processed, as well as all other facilities or operations that might present a significant hazard to the facilities at which special nuclear material (SNM) is located. Section 3.1 states that the ISA program is maintained only for those areas that involve, or could impact, the safe handling of SNM in quantities greater than 1400 g U-235. The revision should indicate that the ISA applies to all quantities of SNM. This information is necessary to determine compliance with the requirements in 10 CFR 70.60 and 70.62(c).

3. Revise Section 5.1 of the license application to indicate that the nuclear criticality safety (NCS) program applies to all SNM activities without exception. Section 5.1 states that the NCS program applies to SNM activities at the Richland site, except where:

   i) SNM quantity is less than or equal to 1400 g ^{235}U; or

   ii) The areal density is less than or equal to 45% of a critical areal density and double batching the material is not credible; or

   iii) The fissile concentration or density does not exceed the amount listed in 49 CFR 173.453; or

iv) SNM is contained within NRC/DOT-approved shipping packages, arranged in array(s), with a total Criticality Safety Index of less than 100 and spaced at least 12 feet from other SNM-bearing packages or material.

This information is necessary to determine compliance with the requirements in 10 CFR 70.62(a)

4. Commit to the ANSI/ANS-8 NCS standards as endorsed by the NRC in RG 3.71, Revision 1, which are applicable to activities at AREVA. Alternatively, justify how the commitments in the license application meet the intent of the standard. The specific version of each standard (e.g., ANSI/ANS-8.1-1998) must be indicated as part of the commitment. The following standards should be addressed as part of your response:

   i) ANSI/ANS-8.1-1998. License application only commits to parts of the 1983 version of the standard.

   ii) ANSI/ANS-8.3-1997. License application commits to the1986 version of the standard.

   iii) ANSI/ANS-8.7-1998. License application does not mention standard.

   iv) ANSI/ANS-8.14-2004. License application does not mention standard. It is not clear if neutron absorber additives would include the use of soluble neutron absorbers.

   v) ANSI/ANS-8.17-2004. License application does not mention standard.

   vi) ANSI/ANS-8.19-2005. License application does not mention standard.

   vii) ANSI/ANS-8.20-1991. License application does not mention standard.

   viii) ANSI/ANS-8.21-1995. License application does not mention standard.

   ix) ANSI/ANS-8.23-1997. License application does not mention standard.

   Revise the license application to specify the version of the ANSI/ANS standards that are being committed to, including the following instances:

   i) Section 5.3.2 reference to ANSI/ANS-8.1 is not dated.

   ii) Section 5.4, third bullet, refers generically to ANSI/ANS standards.

   iii) Section 5.4.2.6, item #2, refers generically to ANSI standards.

   iv) Section 5.4.2.14 reference to ANSI/ANS-8.5 is not dated.

   This information is necessary to determine compliance with the requirements in 10 CFR 70.22(a)(8).

5. Revise the license application to include a definition of credible. The term credible is used repeatedly in Chapter 5 of the license application and in 10 CFR 70.61.

6. Revise the description of the double contingency principle in Section 5.1 of the license application so that it is clearly consistent with the commitment to the double contingency principle in Section 5.3.2.

   Section 5.1 states: "Where practicable, process designs will incorporate sufficient factors of safety to require at least two unlikely, independent, and concurrent changes in process conditions before a criticality accident is possible."

   Section 5.3.2 states: "Process designs shall incorporate sufficient factors of safety during normal and credible abnormal conditions to require at least two unlikely, independent, and concurrent changes in process conditions before a criticality accident is possible."

   This information is necessary to determine compliance with the requirements in 10 CFR 70.61(d).

7. Section 5.3.1 of the license application states: "Processes are examined in the "as-built" condition to validate the safety design and to verify the installation." Revise this section to indicate the function or manager responsible for ensuring this activity has been performed.

   This information is necessary to determine compliance with the requirements in 10 CFR 70.22(a)(6).

8. Revise Section 5.3.2 to clarify whether or not the double contingency principle will be used to meet the criticality related requirements of 10 CFR 70.61(b), and if controls established for double contingency will be declared as items relied on for safety (IROFS). Section 5.3.2 states that the double contingency principle shall be followed to ensure that an accidental nuclear criticality is highly unlikely.

9. Commit to consider heterogeneous effects on parameters when performing Nuclear Criticality Safety Analyses (NCSAs). This information is necessary to determine compliance with the requirements in 10 CFR 70.61(d).

10. Revise the license application to indicate that activities with SNM will not be conducted until the appropriate NCSAs are completed and approved. Section 5.3.4 states that: "operations or processes where the NCS program applies shall be determined by a documented and peer reviewed NCSA to be adequately subcritical." The license application does not indicate if the NCSA needs to be completed or be approved by the NRC prior to the start of activities using SNM.

    This information is necessary to determine compliance with the requirements in 10 CFR 70.61(d).

11. Commit to establish Nuclear Criticality Safety Specifications (NCSSs) based on current NCSAs. Commit to implement NCS limits and controls based on current NCSAs and NCSSs. Section 5.3.5 in the license application states that NCSSs describe the NCS requirements implemented by user organizations, and are prepared based on

the limits established in NCSAs, and they can be a section of an NCSA or a separate document. However, the license application does not indicate that NCSSs shall be based upon current NCSAs, and that the limits and controls will be implemented based on current NCSAs and NCSSs. This information is necessary to determine compliance with the requirements in 10 CFR 70.61(d).

12. Commit to have NCS staff conduct and document (e.g., using checklists, log sheets, etc.) surveillance inspections (i.e., walkthroughs) to determine that activities involving SNM are being conducted in accordance with the established NCS limits and controls. These inspections should be conducted on a weekly basis such that all SNM activities are inspected at least every two weeks, unless an alternative schedule is justified and described in the license application. The current license application does not describe NCS surveillance inspections.

    This information is necessary to determine compliance with the requirements in 10 CFR 70.62(d). Additionally, Section 5.4.3.3(3)(b) of NUREG-1520, "Standard Review Plan for the Review of a License Application for a Fuel Cycle Facility," requests that applicants commit to conduct and document weekly NCS walkthroughs of all operating SNM process areas, unless an alternative NCS walkthrough schedule can be justified.

13. Section 5.1 of the license application states:

    "The objective of the NCS program is preventing an inadvertent nuclear criticality by: (1) Ensuring that sufficient IROFS are in place to render accidental nuclear criticality highly unlikely; and (2) Establishing and maintaining limits and controls on IROFS to ensure that accidental nuclear criticality remains highly unlikely."

    Revise Section 5.1 to also state that sufficient IROFS, including limits and controls, will be in place to ensure that all processes remain subcritical under normal and credible abnormal conditions.

    This information is necessary to determine compliance with the requirements in 10 CFR 70.61(d) and 70.61(e).

14. Commit to demonstrate, within the NCSAs, that those criticality safety controls designated as IROFS are sufficient to ensure that each process will remain subcritical under all normal and credible abnormal conditions regardless of any other controls which may be implemented. Section 5.3.4 of the license application states:

    "The NCSA includes consideration of the potential accident scenarios or initiating events that the system may be subject to and the potential consequences associated with such conditions, and establishes the needed limits, controls, and management measures to ensure that an accidental nuclear criticality is highly unlikely."

    However, it is unclear if the NCSA will demonstrate that the designated IROFS will be sufficient to ensure that each process will be subcritical under normal and credible abnormal conditions. This information is necessary to determine compliance with the requirements in 10 CFR 70.61(d) and 70.61(e).

15. Commit to establish NCS limits and controls on parameters only as specified in the license application. Section 5.4.2 states that the controlled parameters described in Sections 5.4.2.2 through 5.4.2.15 are those that are typically used to control the effective neutron multiplication factor to acceptable values. This information is necessary to determine compliance with the requirements in 10 CFR 70.22(a)(8).

16. Commit to document, in the NCSA, the justification for using less than optimal conditions for parameters that are not controlled. Section 5.4.2.2 of the license application states that less than optimal conditions can be used for uncontrolled parameters when "…..historical data and/or sound engineering determinations can be applied to justify a lesser reactive condition." This information is necessary to determine compliance with the requirements in 10 CFR 70.61(d).

17. Revise Section 5.4.2.2 of the license application to indicate how limits are established on controlled parameters for normal conditions. Section 5.4.2.2 only describes how limits on controlled parameters are established for credible abnormal conditions.

    This information is necessary to determine compliance with the requirements in 10 CFR 70.61(d).

18. Revise Section 5.4.2.3 of the license application to include a definition of the "minimum critical mass" as used in this section. Section 5.4.2.3 states that workstations controlled only by fissile material mass shall be limited to no more that 0.45 of the minimal critical mass of the material in process."

    This information is necessary to determine compliance with the requirements in 10 CFR 70.61(d).

19. Section 5.4.2.3 of the license application states that: "Alternate mass controls may be used for operations where equipment/container geometry in reality constitutes a multi-parameter control." Revise the license application to indicate the alternate mass controls that may be used. This information is necessary to determine compliance with the requirements in 10 CFR 70.61(d).

20. Section 5.4.2.4 states that: "The calculation of areal density shall assume that the maximum credible mass is present and is distributed over the minimum credible area." Provide two examples to illustrate how this is done in practice.

    This information is necessary to determine compliance with the requirements in 10 CFR 70.61(d).

21. Justify the safety factors in tables 5-1 and 5-2 for the infinite slab, and the safety factor in Table 5-2 for the spherical volume. The safety margin for these cases is less than what is listed in the current license application.

    This information is necessary to determine compliance with the requirements in 10 CFR 70.61(d).

22. Revise Section 5.4.2.7 of the license application to describe how density may be controlled. This information is necessary to determine compliance with the requirements in 10 CFR 70.61(d).

23. The first sentence in Section 5.4.2.9 states that controls are required in order to use a less reactive condition than full water reflection. The second sentence states: "In such cases, the limitations on reflectors that are needed to assure criticality safety shall be controlled or it shall otherwise be shown that exceeding the amount of reflection assumed in establishing k_{eff} limits for credible abnormal conditions is highly unlikely." The second sentence is not entirely clear, but it seems to imply that less than full water reflection is permitted under conditions where controls are not implemented.

    Revise Section 5.4.2.9 of the license application to clearly indicate the conditions under which less than full water reflection may be used. Commit to document, in the NCSA, the justification for the chosen reflector conditions when less than full water reflection is used. The minimum reflector conditions that will be used should also be specified in Section 5.4.2.9. Provide justification that this minimum reflector condition accounts for all potential reflectors during normal operations and credible process upsets.

    This information is necessary to determine compliance with the requirements in 10 CFR 70.61(d).

24. Describe how the concentration of hydrogenous material described in Section 5.4.2.10 of the license application, can be assured to be less than or equal to 50 percent of the critical concentration. Section 5.4.2.10 states that one of the three requirements for establishing a moderator control, where the hydrogenous material within the SNM is limited to a small percentage by weight is that the permitted concentration of the hydrogenous material is less than or equal to 50 percent of the critical concentration.

    This information is necessary to determine compliance with the requirements in 10 CFR 70.61(d).

25. Section 5.4.2.11 of the license application states that a concentration limit may be used if "The concentration limit at worst case credible conditions shall not exceed 50 percent of the minimum critical concentration in the system being evaluated." Revise this section to indicate that this refers to handbook values, and that the "worst case credible conditions" includes the four abnormal conditions listed in Section 5.4.2.11 (a–d).

    This information is necessary to determine compliance with the requirements in 10 CFR 70.61(d).

26. Describe how the uranium concentration limits are maintained (Section 5.4.2.11 of the license application). The description should distinguish between dispersed uranium and dissolved uranium, and include the means by which it is ensured that the localized concentration does not exceed the concentration limits. This information is necessary to determine compliance with the requirements in 10 CFR 70.61(d).

27. Section 5.4.2.12 of the license application states that systems separated by "A 25 cm thick slab of concrete" may be considered neutronically isolated. Revise the license application to include the minimum concrete density that is acceptable for this condition. Justify the selected concrete density and slab thickness.

28. Section 5.4.2.12 states that in-transit un-moderated material, or in-transit moderated material, in nominal 5-gallon or less containers, spaced at least 30 cm away, can be excluded from interaction considerations. Commit to consider the interaction of all in-transit material with other fissile systems in the NCS analyses. Alternatively, commit to reduce the maximum acceptable neutron multiplication factor, for both normal and credible abnormal conditions, by a specified value when in-transit materials are not explicitly considered in an NCSA. Provide justification that this specified value can account for the increased reactivity that may result from in-transit material for both normal and credible abnormal conditions.

    This information is necessary to determine compliance with the requirements in 10 CFR 70.61(d).

29. Section 5.4.2.12 of the license application states that transfer pipes, two inches or less in diameter, may be excluded from interaction considerations. Revise this exclusion to account for fissile systems and multiple pipes in close proximity. Provide justification for the exclusion of transfer pipes from interaction considerations.

    This information is necessary to determine compliance with the requirements in 10 CFR 70.61(d).

30. Commit to maintain documented evaluations at the facility that demonstrates that the criticality accident alarm system (CAAS) meets the requirements of 10 CFR 70.24. Section 5.5 of the license application states that the CAAS will meet the requirements of 10 CFR 70.24(a)(1), but does not indicate that will be demonstrated in documented evaluations.

31. Section 5.5 of the license application states the following:

    “Should the nuclear criticality accident alarm system or a portion of the system be out of service for a period of more than four hours, movement of SNM in the affected area will cease until the alarm system has been restored, or until compensatory monitoring, approved by the nuclear criticality safety component, has been implemented.”

    “Routine testing, calibration and/or maintenance of the system are permitted with no suspension of SNM movements.”

    The following items should be addressed regarding these statements:

    i) Commit to halt SNM operations or put compensatory measures in place during routine testing, calibration, maintenance, or planned outages of the CAAS, or provide justification for not doing so.

    ii) For an unplanned loss of CAAS coverage, explain why SNM operations cannot be halted and why compensatory monitoring cannot be put in place in less than four hours in the event the CAAS is out of service.

    iii) Describe the compensatory monitoring or other measures that will be used when the CAAS is not fully operational.

iv) Commit to halt SNM operations in areas where the CAAS is not fully operational for more than a specified number of hours. Justify the number of hours that are specified.

This information is necessary to determine compliance with the requirements in 10 CFR 70.24.

32. Commit to have a CAAS that is designed to remain operational during credible events (e.g., design-basis earthquake, fires, explosions, or other events described in ISA), or provide and justify an alternative standard for CAAS operability during such events.

    This information is necessary to determine compliance with the requirements in 10 CFR 70.24.

33. Revise Section 5.6 of the license application to indicate that AREVA has authorized its staff to use the listed references. The phrase "…..authorized for use by AREVA NP" is ambiguous as to whether it is the NRC or AREVA NP that has authorized the use of the references. This information is needed to ensure that the listed references are intended for informational purposes and do not require review and approval by NRC, unless explicit commitments are provided in other sections of the license application.

34. With regard to the authorization to possess fuel at reactor sites (Section 1.2.5.5 of the license application), commit to comply with the applicable reactor license, regardless of any exemptions in the AREVA license, and with the commitments made in Chapter 5 regarding NCS.

    Reactor licensees have the option of meeting 10 CFR 70.24 or 10 CFR 50.58; the authorization in Section 1.2.5.5 shall be in compliance with the reactor licensee's requirements under these sections. This information is needed to ensure that AREVA's activities at other facilities are being conducted in accordance with the NRC license for that facility.

35. With regard to the use of "peer reviewed handbooks" (Sections 5.4 and 5.4.2.6 of the license application), provide examples of handbooks that are considered acceptable, and provide your acceptance criteria for the use of such handbooks. State how "approved safety factors" will be determined. This information is necessary to determine compliance with the requirements in 10 CFR 70.61(d).

36. Provide the validation document listed as Reference 17 (EMF-2670, "PC-SCALE 4.4a Validation," Revision 2) and identify where in this document the nine items mentioned in Section 5.4.1 of the license application are described.

    This information is necessary to determine compliance with the requirements in 10 CFR 70.61(d).

37. Define the term "safety margin" in the first of nine items in Section 5.4.1 of the license application, and summarize how it may be justified.

38. Define the term “boundaries” in the sixth of nine items in Section 5.4.1 of the license application. The meaning of the term “boundaries that could limit the appropriate use of the methodology” is unclear.

39. Describe what kind of justification may be used to allow extrapolation beyond the code’s area of applicability (seventh of the nine items in Section 5.4.1 of the license application). Add a commitment that any extension will be made by making use of trends in the bias.

    This information is necessary to determine compliance with the requirements in 10 CFR 70.61(d). Additionally, NUREG-1520, Section 5.4.3.4.1(6)(3) reiterates statements from ANSI/ANS-8.1-1998 to the effect that extending the area of applicability should be based on trends in the bias. The information is needed to ensure subcriticality when it is necessary to extend the area of applicability outside the bounds covered by benchmark experiments.

40. Provide a summary of the validated area(s) of applicability (Section 5.4 of the license application). This information is necessary to determine compliance with the requirements in 10 CFR 70.61(d). Additionally, NUREG-1520, Section 5.4.3.4.1(7)(b) states that the area of applicability of the code should be described. This information is needed to ensure that calculation methods are only used within valid bounds.

41. Section 5.4.2.1 of the license application states:

    “The maximum evaluated neutron multiplication factor at normal and credible abnormal conditions shall not exceed $k_{95/95}$ = 0.95 for normal conditions or 0.97 for credible abnormal conditions, if justified by a sensitivity analysis.”

    With regard to this commitment, answer the following questions:

    i) Does the requirement to perform a sensitivity analysis apply only to credible abnormal conditions, or to both normal and credible abnormal conditions?

    ii) Provide illustrative examples of such a sensitivity analysis. Explain how they justify the use of the stated $k_{95/95}$ limits.

    This information is necessary to determine compliance with the requirements in 10 CFR 70.61(d).

42. Explain your statement in Section 5.4.2.1 of the license application, which reads: “A conservative bias will not be used unless the reason for the bias is well understood and justified.” Describe what type of justification may be used, and provide illustrative examples, if they exist.

Chapter 7: Fire Safety

1. AREVA clarified, with the NRC staff, in a June 11, 2008, call that they do not use the National Fire Protection Association (NFPA) Code 801, "Standard for Facilities Handling Radioactive Materials." What other codes and standards are used by AREVA to meet the intent of NFPA 801 and ensure adequate fire protection measures for the entire facility? This information is necessary to determine compliance with the requirements in 10 CFR 70.23(a)(3 and 4), and 70.64(a)(3).

2. Provide the types, locations, and purposes of fire suppression systems at the facility used to meet the requirements of 10 CFR 70.23(a)(3) and the performance requirements in 10 CFR 70.61. What NFPA (or other codes) are used for the design, inspection, testing, and maintenance of engineered fire protection systems? Appropriate ISA sections may be referenced as part of the response.

3. NFPA 801 recommends that buildings containing radioactive material be fire resistive or noncombustible (Type I or Type II in accordance with NFPA 220, "Standards on Types of Building Construction"). AREVA clarified, with the NRC staff, in a June 11, 2008, call that they do not follow NFPA 801 recommendations. Do the facility buildings meet the intent of this recommendation, based on their construction? If not, what is the estimated fire resistance of exterior walls, interior walls (fire barriers and load bearing walls), and floors? How does the building construction assist the facility in meeting the performance requirements in 10 CFR 70.61 in regard to internal and external fires?

4. What is the training level of the operators (i.e., portable fire extinguishers, interior house lines, personal protective equipment, etc.)? This information is necessary to determine compliance with the requirements in 10 CFR 70.23(a)(3).

5. Please discuss any combustible (or flammable) liquids used in the uranium recovery dissolution process. What are the safety consequences due to fire relative to the requirements in 10 CFR 70.61? What types of fire protection measures are provided? Appropriate sections of the ISA may be referenced.

6. Justify the combined failure index of -4 for IROFS 4502 (limits on storage of combustible solids) and IROFS 4503 (monthly surveillance program). At least one more IROFS appears to be required to result in a finding of a highly unlikely consequence. This information is necessary to demonstrate compliance with 10 CFR 70.62(c)(vi) and 10 CFR 70.65(b)(6).

   Normally in an ISA fire scenario, if the index method is used to indicate the reliability of a combustible loading control, that index may range from -1 to -3, with -1 assigned to a simple administrative control (e.g. monthly surveillances only) and -3 assigned to an enhanced administrative control (e.g. combustible permitting procedure, signs, worker training, and frequent surveillances). Therefore, even with a -3 index, another IROFS is normally required to meet the performance requirements in 10 CFR 70.61.

7. Provide more details about IROFS 4530 (HEPA filters) regarding resistance of HEPA filters to fires including, but not limited to, temperature limits, duct lengths, interior combustibles, and maximum postulated temperatures. This information is necessary to demonstrate compliance with 10 CFR 70.62(c)(vi) and 10 CFR 70.65(b)(6).

Chapter 9: Environmental Protection

1. Sections 9.2 and 9.3 of the license application discuss gaseous and liquid effluent controls. However, the license application does not discuss how these effluents will be kept as low as reasonably achievable (ALARA). Consistent with 10 CFR 20.1101(b) and 10 CFR 20.2001(a)(3), provide a detailed description of the ALARA goals for effluent controls.

2. Chapter 9 of the license application does not discuss any waste minimization practices or procedures conducted by AREVA. Consistent with 10 CFR 20.1101(b) and 10 CFR 70.22 (a)(8), discuss what procedures and practices AREVA has to minimize waste generation, and specify how these procedures and practices will be implemented over a period of 40 years. Discuss what methods are used to minimize waste in gaseous and liquid effluents.

3. In the Supplement to Applicant's Environmental Report, Chapter 3.0 "Analysis of Environmental Effects", Table 11 reports fluoride air emission samples from 2000 through 2005. Samples collected in 2004 and 2005 shown an order of magnitude increase in the fluoride emission rate which approaches the 0.5 ug/m3 emission limit.

   i) Please provide an explanation for the increase in fluoride emissions in 2004 – 2005. Also provide recent data (2006 – 2008) so the NRC can determine if the increasing trend continues.

   ii) Based on a recent conversation, AREVA NP indicated that the emission data may need correction. Please explain the method used to re-analyze ambient air fluoride samples and include in this explanation the approach used to adjust prior year data. Based on the low concentration levels, how did AREVA NP identify that acetate caused the ion interference? By what process will AREVA NP apply to correct future ion chromatographic readings?

   iii) Discuss what procedures AREVA will use to ensure that the HF concentration in the forage will remain below the regulatory limits during a period of 40 years, including the steps implemented if an increasing trend of this chemical is identified.

Chapter 11: Management Measures

1. Section 11.2.2 describes the preventive maintenance program for the facility. However, this section does not discuss what methodology will be used to establish the frequencies of safety-related instrument repetitive maintenance or preventive maintenance. Describe what methodology is going to be used to establish such frequencies. This information is necessary to determine compliance with the requirements in 10 CFR 70.62(d).

2. Section 11.1 of the license application does not provide any information on reconstitution of design bases and requirements for the AREVA facility. Revise the license application to include a discussion on this subject. This discussion should include the following items:

   i) whether the need for reconstitution was properly investigated;

ii) a discussion on the approach used to complete reconstitution of design bases and requirements, as necessary; and

iii) how the new or revised documentation was incorporated into the configuration management system.

3. Section 11.3.1 discusses the plans for recurrent training of personnel working at AREVA This section excludes recurrent training in several program areas where initial training will be provided to the AREVA staff, such as chemical safety, fire protection, etc. Revise the section on "Recurrent Training" in the license application to reflect consistency with the training information included under "Initial Training."

   This information is necessary to determine compliance with the requirements in 10 CFR 70.22(a)(6).

4. Section 11.5 discusses audits and assessments for the facility. Section 11.5.1 does not specify that audits will be conducted to certain programs such as emergency management, quality assurance, configuration management, maintenance, training and qualification, procedures, incident investigation, and records management. Section 11.5.2 considers emergency preparedness, configuration management and training and qualification in the application of the assessment program, but excludes quality assurance, configuration management, maintenance, training and qualification, procedures, incident investigation, and records management. Revise both sections in the license application to reflect consideration of management measures, as defined in 10 CFR 70.4, to the audit and assessment programs for the AREVA facility.

   This information is necessary to determine compliance with the requirements in 10 CFR 70.62(a).

5. Section 11.6.2 discusses issue investigation and causal analysis. However, this section does not discuss how the results of an incident investigation and causal analysis are used to eliminate or minimize the root cause from recurring. Describe how such results are used to eliminate or minimize recurrence of an incident. This information is necessary to determine compliance with the requirements in 10 CFR 70.62(a).

6. Section 11.8 states that: "Quality Assurance (QA) elements are applied to IROFS as management measures to assure that there is reasonable assurance that IROFS are available and able to perform their functions when needed." However, "Other QA elements" applied at the facility are not mentioned or defined in the license application. Since "Other QA elements" are part of the management measures criteria per its definition in 10 CFR 70.4, revise this section to clarify what other QA elements apply. This information is necessary to determine compliance with the requirements in 10 CFR 70.62(d).